**Precalculus**

**Notes 4.6**

1. **Graph of the Tangent function**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Function** | **Domain** | **Range** | **Even/Odd** | **Period** | **Zeros** |
|  |  |  |  |  |  |

Graph on your calculator.

1. Is the function even or odd?
2. What is the range?
3. When does ?
4. When is undefined?

and are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for The graph of has an infinite number of vertical asymptotes.

What is the domain of

What is the period of ?

Since is \_\_\_\_\_\_\_,

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |
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To sketch the graph of form ; do the same way as we did

1. 2 consecutive asymptotes are found by solving the equations:
2. The midpoint between 2 consecutive asymptotes is an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. Plot a few additional points.

**Ex. 1:** Sketch .

1. Find 2 consecutive asymptotes:
2. Midpoint:
3. A few additional points:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
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**Ex. 2:** Sketch

1. Asymptotes:
2. x-intercepts:
3. More points:
4. **Graph of the Cotangent function**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Function** | **Domain** | **Range** | **Even/Odd** | **Period** | **Zeros** |
|  |  |  |  |  |  |

Graph on your calculator.

1. Is the function even or odd?
2. What is the range?
3. When does ?
4. When is undefined?

and are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for The graph of has an infinite number of vertical asymptotes.

What is the domain of

What is the period of ?

**Ex. 3:** Sketch

1. Asymptotes:
2. x-intercepts:
3. More points:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
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|  |  |  |  |  |  |

1. **Graphs of the Reciprocal Functions**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Function** | **Domain** | **Range** | **Even/Odd** | **Period** | **Zeros** |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

Graph on your calculator.

1. Is the function even or odd?
2. What is the range?
3. When does ?
4. When is undefined?

and , etc. are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for The graph of has an infinite number of vertical asymptotes.

What is the domain of

What is the period of ?

**Ex. 4:** Sketch

1. Sketch Amp:\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_

Now divide into 4 equal parts.

Now graph the function on your calculator.

1. Is the function even or odd?
2. What is the range?
3. When does ?
4. When is undefined?

and are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for The graph of has an infinite number of vertical asymptotes.

What is the domain of

What is the period of ?

**Ex. 5:** Sketch

1. Sketch Amp:\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_

Horizontal shift:

Divide into 4 equal parts.